

- Pseudomyothyria* Towns., N. Am. Tach. iii, Tr. Am. Ent. Soc. xix (1892).
Myothyria v. d. Wulp, Biol. Cent.-Amer. Dipt. ii, 208 (1890).
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Rhinophora R. Desv., Myod. 258 (1830); Schin., Dipt. Austr. i, 545.
Leucostoma Meig., Illig. Mag. ii, 250 (1803); Schin., Dipt. Austr. i, 542.
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Vanderwulpia Towns., N. Am. Tach. ii, Tr. Am. Ent. Soc. xviii, 381 (1891).
Euthera H. Loew, Centur. vii, 85 (1866).
Cestonia Rdi., Pr. Dipt. ital. iii (1859).
Scopolia R. Desv., Myod. 268 (1830); Schin., Dipt. Austr. i, 539.
Euscopolia Towns., N. Am. Tach. iii, Tr. Am. Ent. Soc. xix (1892).

It may be well to note the following synonymies :

- Saundersia* : syn. *Epalpus* Rdi.
Nemochæta : syn. ? *Tachinodes* Br. and Bgst., Muse. Schiz. 65 (1889).
Meigenia : syn. *Spilosia* Rdi., Pr. Dipt. ital. iii, 111 (1859). On authority of v. d. Wulp (Biol. Cent.-Amer.).
Exorista : syn. ? *Eurygaster* Macq., Hist. Nat. Dipt. ii, 115 (1835); Dipt. Ex. ii, 3. 57. On authority of v. d. Wulp (l. c.).
Phasiopteryx : syn. *Neoptera* v. d. W., Biol. Cent.-Amer.; Dipt. ii 165 (1890). On authority of v. d. Wulp (l. c.).
Phyto : syn. *Ptilocera* R. Desv., Myod. 221 (1830).

THE NORTH AMERICAN GENERA OF NEMOCEROUS DIPTERA.

BY C. H. TYLER TOWNSEND.

Principally for my own convenience in the identification of species, I some time ago drew up synopses of the North American genera of Nemocera. Dr. Williston's book on the families and genera of N. American Diptera omits the genera of Nemocera and Muscidae *sens. lat.* I have already published, above, generic synopses of the Calyptrate Muscidae, and the following tables of the Nemocera, as supplying a hiatus that has perhaps been felt by others as well as myself, are herewith published.

These tables should not be trusted without reference to the generic descriptions. They contain all the genera given in the Osten Sacken Catalogue, and all the new genera since described from America north of Panama. Some European genera, which are omitted because they have not been recorded from this country, may yet be found to occur here. The tables have been prepared from descriptions almost solely, and are offered only as a basis for generic determinations. They have, however, been largely verified by actual

use. In the Cecidomyidæ and Psychodidæ only, are a number of European genera included, which it is possible may be found to occur here. These are preceded by a *o*.

For some valuable suggestions on the grouping of the families of Nemocera, the student is referred to a preliminary paper on the subject by Baron Osten-Sacken (Ent. Mo. Mag. second series, ii, pp. 35-39, February, 1891). The more rational plan of the grouping of the families, as there pointed out, is adopted in this paper.

A synopsis of the families of Nemocera will be found in Dr. Williston's book above referred to.

SYNOPSIS OF GENERA.

I.—NEMOCERA.

Family CECIDOMYIDÆ.

- 1.—Three, or four, longitudinal* veins in the wing, in the former case the third nearly always forked; in the latter case the veins always simple and the fourth distinct its entire length; wings always pubescent, no ocelli, first tarsal joint much shortened (*Cecidomyia*).....2.
Five or more longitudinal veins in the wing, or if only four, then the fourth vein forked; wings bare or pubescent, ocelli present (except in *Cecidogona*), first tarsal joint not shortened (*Lestremia*).....12.
 - 2.—Three longitudinal veins, the third furcate or simple.....3.
Four longitudinal veins; cross-vein either between base and tip of first vein, or oblique and originating at base of first vein, in the former case the second longitudinal vein is straight, in the latter case sinuate.
- o* **Asynapta.**
- 3.—Cross-vein placed between base and tip of first longitudinal vein, frequently almost obsolete.....4.
Cross vein very oblique, originating at base of first longitudinal.....11.
 - 4.—Second longitudinal vein reaching margin at a slight or considerable distance before middle of tip of wing5.
Second vein reaching margin at or beyond the exact wing tip.....8.
 - 5.—Third longitudinal vein simple, not furcate, first vein close to and parallel with costa; hairs of wing surface scaly; antennæ filiform, 13-jointed, joints elongate, cylindrical, with a short pubescence and without verticils..... *o* **Spaniocera.**
Third longitudinal vein furcate..... 6.
 - 6.—First and second veins very closely approximated their whole length and very near the costa, the second vein reaching the front border more than one-third of the distance before the tip of the wing; antennæ 16- to 26-jointed, joints subglobular, sessile, with short verticils.....7.

* It must be borne in mind that the term "longitudinal," as here applied, means any long vein of the wing as distinguished from a cross-vein, and thus includes what is known in other families as the auxiliary vein.

First and second veins widely distant at their extremities, the second vein reaching margin very slightly before exact middle of wing tip; usually same number of joints in ♂ and ♀ antennæ, the joints either pedicelled or sessile in both sexes, or pedicelled in ♂ and sessile in ♀.

Cecidomyia.

7.—Mouth parts prolonged into a rostrum.....subgen. **Clinorhyncha.**

Mouth parts normal.....**Lasioptera.**

8.—Third vein simple, without fork; second vein forming a curve before cross-vein and much curved backward at its extremity, reaching margin beyond tip of wing; cross-vein rather large, oblique; joints of ♀ antennæ pedicelled*.....**Colpodia.**

Third vein furcate9.

9.—Antennæ with same number of joints in both sexes; second vein reaches margin a little beyond tip of wing; antennal joints cylindrical, sessile, with a short pubescence, not verticillate**Asphondylia.**

Antennæ with a different number of joints in ♂ and ♀; second vein reaches margin either at or beyond tip of wing10.

10.—Antennæ of ♂ usually 26-jointed, of ♀ 14-jointed, sometimes in either case with one rudimentary joint more; joints in ♂ pedicelled, alternately single and double, rarely all simple; in ♀ pedicelled, cylindrical.

Diplosis.

Antennæ of ♂ 14- to 36-jointed, slender, joints flagellate, pedicelled, verticillate, either rounded or elongate, the petioles very often widened and capitate below the joints; if the joints are doubly verticillate, then the upper verticil or whorl is longer than the lower; antennæ of ♀ usually thick and heavy, 14- to 24-jointed, with short verticils, formed as in *Diplosis*, either acaluate or with short pedicels; thorax more or less gibbose, frequently extending over the head in the form of a hood.

o **Hormomyia.**

11.—Second vein almost straight before the cross-vein; joints of antennæ sessile, or nearly so in both sexes.....o **Dirhiza.**

Second vein distinctly sinuate before cross-vein; joints of antennæ variable in number and pedicelled in both sexes.....o **Epidosis.**

12.—Ocelli present13.

Ocelli absent; third vein forked, first vein very short, wings pubescent; antennæ 11-jointed in both sexes, moniliform, verticillate in ♂, and submoniliform, pubescent in ♀o **Cecidogona.**

13.—Third vein forked.....14.

Fourth vein forked; antennæ 11- to 20-jointed; in ♂ moniliform, pilose, joints pedicelled; in ♀ submoniliform, pubescent, joints sessile.

Campylomyza.

14.—Upper branch of fork of third vein forming a double curve, somewhat in shape of an S, lower branch in straight line with præfurea.

Tritozyga.

Upper branch of fork forms a single light curve; ♂ antennæ 16-jointed, verticillate, joints pedicelled.....15.

15.—Antennæ of ♀ 10-jointed, pilose, joints moniliform; second vein reaching apex of wing.....o **Catocha.**

Antennæ of ♀ 11- to 12-jointed, joints sessile; second vein terminating on front border of wing, at one-fourth distance before tip.o **Lestremia.**

* A single European species only has been described. The ♂ is unknown.

Family MYCETOPHILIDÆ.

- 1.—Coxæ very strongly elongated (Mycetophilina) 4.
Coxæ only moderately long (Sciariina) 2.
- 2.—Wings hairy **Trichosia.**
Wings bare 3.
- 3.—Joints of funiculum of ♂ round, with long pedicels and thick whorls of hair **Zygoneura.**
Joints of funiculum round or elongate, not pedicelled, and only slightly hairy **Sciara.**
- 4.—Fourth vein arising from fifth far from base of wing, and almost at its middle 5.
Fourth vein arising from fifth very near to base of wing. 12.
- 5.—Upper branch of fork of third vein very long and oblique 6.
Upper branch short, sometimes so steep that it appears like an extra cross-vein 8.
- 6.—Fork of third vein not petiolate, *i. e.*, arising exactly where the small cross-vein meets the third longitudinal **Mycetobia.**
Fork of third vein petiolate, always arising at some distance behind junction of small cross-vein with third vein 7.
- 7.—Fork of third vein longer than fork of fourth **Ditomyia.**
Fork of third vein shorter than that of fourth **Plesiastina.**
- 8.—Fork of fourth vein arising beyond the small cross-vein ... **Bolitophila.**
Fork of fourth vein arising above small cross-vein, and apparently from the third vein 9.
- 9.—Antennæ unusually long and slender, filiform **Macrocera.**
Antennæ rather short, and usually also rather thickened 10.
- 10.—Proboscis beak-like, elongate **Asyndulum.**
Proboscis not elongate 11.
- 11.—Antennæ broad, flattened; palpi not incurvate **Ceroplatus.**
Antennæ not flattened; palpi incurvate **Platyura.**
- 12.—Third vein furcate, the upper branch of the fork usually very steep (and often arising so near to the base that it forms and closes a very small supernumerary cell in front of it) 13.
Third vein simple ... 18.
- 13.—Second longitudinal vein elongate, more so than in the other allied genera, conspicuous **Eudicrana.**
Second vein shorter, not elongate 14.
- 14.—Small cross-vein more than twice as long as præfurea of third vein, and so oblique that it appears like the beginning of the latter; the steep basal part of third vein and the steep upper branch of fork of same appearing like two parallel cross-veins. **Tetragoneura.**
Small cross-vein only a little longer than, as long as, or shorter than præfurea of third vein, always moderately oblique, but never appearing like beginning of latter; the steep basal part of third vein usually divergent or convergent with upper branch of fork of same 15.
- 15.—Costal vein reaching only to extremity of third longitudinal. **Sciophila.**
Costal vein extending always somewhat, and often widely beyond extremity of third vein 16.

- 16.—Fourth vein forked almost immediately below small cross-vein, the præfurca, therefore, very short..... **Lasiosoma.**
 Fourth vein forked far beyond small cross-vein, the præfurca long..... 17.
- 17.—Fifth vein forked exactly opposite, or before small cross-vein; third vein always straight..... **Neoempheria.**
 Fifth vein forked far beyond small cross-vein; third vein sometimes sinuate..... **Polylepta.**
- 18.—Three ocelli present*.....19.
 Only two ocelli.....**Mycetophila.**
- 19.—Costal vein extending more or less beyond extremity of third vein.....20.
 Costal vein reaching only to extremity of third vein.....28.
- 20.—Fifth vein not furcate..... **Acnemia.**
 Fifth vein furcate.....21.
- 21.—Fork of fifth vein lying before or under fork of fourth..... 22.
 Fork of fifth vein lying perceptibly beyond the fork of the fourth.
Phthinia.
- 22.—Proboscis elongate, beak-like.....**Guoriste.**
 Proboscis not elongate.....23.
- 23.—Front branch of first vein (auxiliary) connected with main branch by a cross-vein.....24.
 Front branch of first vein not connected with main branch by a cross-vein..26.
- 24.—Ocelli of nearly equal size; front branch of first vein broken off and terminating in the cross-vein which connects it with the main branch.
Sytemna.
 Ocelli of unequal size; front branch of first vein nowhere broken off, but terminating in front margin.....25.
- 25.—Costal vein extending widely beyond termination of third vein..**Boletina.**
 Costal vein extending but little beyond termination of third; antennæ like *Platypura*..... **Diomonus.**
- 26.—Second basal cell very long, reaching beyond middle of wing; bases of upper branches of fourth and fifth veins indistinct..... **Leia.**
 Second basal cell moderately long, always ending before middle of wing; bases of upper branches of fourth and fifth veins distinct.....27.
- 27.—Fourth posterior cell lying between the two branches of fifth longitudinal vein, very pointed or acute at base and generally very narrow, the branches only a little divergent..... **Epicypsa.**
 Fourth posterior cell moderately wide, branches of fifth vein strongly divergent..... **Docosia.**
- 28.—Fifth vein furcate.....29.
 Fifth vein not furcate..... **Zygonymia.**
- 29.—Front branch of first vein very long, and always ending in costa.
Neoglaphyroptera.
 Front branch of first vein very short, or if longer, then always ending in main branch, not in front border.....30.
- 30.—Fifth vein forked before or opposite small cross-vein, and always nearer to base of wing than to fork of fourth..... 31.
 Fifth vein forked beyond small cross-vein, and always nearer to wing border than to fork of fourth.....**Mycothera.**

* Walker does not mention ocelli in description of *Diomonus*, which is here included.

- 31.—Front branch of first vein reaching beyond middle of second basal cell.
Trichonta.
 Front branch of first vein never reaching middle of second basal cell, often rudimentary.....32.
- 32.—Fork of fifth vein very acute, the lower branch at its middle suddenly diverging from the upper branch..... **Rhymosia.**
 Fork of fifth vein not strikingly acute, the lower branch gradually diverging from the upper..... **Allodia.**

Family CULICIDÆ.

- 1.—Proboscis short, scarcely longer than head; metatarsi longer than next joint (Corethrina)..... **Corethra.**
 Proboscis very long, always longer than head and thorax together (Culicina).....2.
- 2.—Tip of proboscis strongly curved..... **Megarrhina.**
 Tip of proboscis straight.....3.
- 3.—Palpi very short in both sexes..... **Aedes.**
 Palpi very long in both sexes, longer than proboscis, or long in ♂ and short in ♀.....4.
- 4.—Palpi longer than proboscis in both sexes; forceps of ♂ as long as, or shorter than last segment..... **Anopheles.**
 Palpi long in ♂ very short in ♀; forceps of ♂ longer than last segment. **Culex.**

Family CHIRONOMIDÆ.

- 1.—Flagellum of antennæ in ♂ long and thickly ciliate, plumose-tufted or penicillate (Chironomina).....4.
 Flagellum of ♂ only short hairy, never with plume-like tufts or pencils.....2.
- 2.—Antennæ with an equal number of joints in both sexes.....3.
 Antennæ of ♂ 14-jointed, of ♀ 7-jointed; palpi short..... **Hydrobennus.**
- 3.—Antennæ 7-jointed in both sexes..... **Chasmatonotus.**
 Antennæ 15-jointed in both sexes..... **Oecacta.**
- 4.—Second basal cell closed, the hind cross-vein, therefore, always distinct.....5.
 Second basal cell open, hind cross-vein wholly wanting.....6.
- 5.—Antennæ with same number of joints in both sexes..... **Tanypus.**
 Antennæ with at least twice as many joints in ♂ as in ♀..... **Diamesa.**
- 6.—Thorax greatly arched and usually strongly produced in front; legs, particularly anterior pair, long and slim; third vein never furcate; long pubescence of ♂ antennæ arranged in plumose tufts. **Chironomus.**
 Thorax moderately arched, never produced anteriorly; legs moderately long and often very robust; third vein often furcate; the long pubescence of ♂ antennæ in pencils.....7.
- 7.—Claws of hind feet greatly unequal in length, each tarsus apparently with only one claw; front femora much dilated, with a series of spines on anterior edge..... subgen. **Heteromyia.**
 Claws of hind feet equal; front femora normal, not differentiated from others..... **Ceratopogon.**

Family PSYCHODIDÆ.

- 1.—Third vein ending exactly at apex of wing..... **Psychoda.**
 Third vein ending below apex of wing.....2.

- 2.—Wing of ♂ with a moderately large opaque knob in middle...o **Ulomyia**.
 Wing without such knob, normal in both sexes.....o **Pericoma**.

Family TIPULIDÆ.

- 1.—Wings wholly wanting; species spider-like in appearance (subfam. Eriopterina pt.).....**Chionea**.
 Wings always present, rarely stunted and rudimentary in ♀2.
- 2.—Seven longitudinal veins present5.
 Only six longitudinal veins (subfam. Ptychopterina).....3.
- 3.—Subcostal cross-vein absent, first submarginal cell much longer than second..4.
 Subcostal cross-vein present, second submarginal cell much longer than first;
 six posterior cells **Idioplasta**.
- 4.—Three posterior cells; antennæ 20-jointed, tibial spurs weak.
Bittaecomorpha.
 Four posterior cells; antennæ 16 jointed, tibial spurs strong.
Ptychoptera.
- 5.—Last joint of palpi shorter, or not much longer than the two preceding joints together;* auxiliary vein usually ending in costa and connected with first vein by a cross-vein† (sec. Tipulidæ *brevipalpi*).....16.
 Last joint of palpi very long, whip-like; auxiliary vein ending in first vein, and not connected by any cross-vein with either first vein or costa, except by humeral cross-vein with latter (sec. Tipulidæ *longipalpi*)6.
- 6.—Legs extremely long and slender, especially the tarsi; anterior branch of second vein absent, obsolete or perpendicular (subfam. Dolichozeina)..7.
 Legs not uncommonly slender; anterior branch of second vein present and oblique10.
- 7.—Antennæ 13-jointed; anterior branch of second vein wholly absent; ♂ forceps complex..... **Dolichozeina**.
 Antennæ 8- to 11-jointed; ♂ forceps simple..... 8.
- 8.—Fifth posterior cell not in contact with discal cell; wings hyaline.
Megistocera.
 Fifth posterior cell in contact with discal cell; wings not hyaline.....9.
- 9.—Head on a neck-like prolongation of thorax; seventh vein short, running into anal angle**Brachypremna**.
 Head not on such prolongation; seventh vein terminating in margin some distance from anal angle.....**Tanypremna**.
- 10.—Antennæ of ♂ pectinate (subfam. Ctenophorina)11.
 Antennæ not pectinate (subfam. Tipulina *s. str.*)..... 12.
- 11.—Antennæ of ♂ short pectinate on inside, outside and below; ♀ with a very long sword-like ovipositor..... **Xiphura**.
 Antennæ of ♂ pectinate on inside and outside, but not below; ♀ with a moderately long, but never sword-like, ovipositor..**Ctenophora**.

* In *Pedicia* the last joint of palpi is nearly one and a half times as long as the three preceding joints together; but the auxiliary vein ends in the costa, and is connected with the first vein by a cross-vein.

† In *Antocha* the auxiliary vein ends in the first vein, but the palpi are not whip-like.

- 12.—Three veins proceeding from discal cell in front, the upper two sometimes approximated at base, or actually united and petiolate, but the petiole (or præfurca) so short that it never reaches the fifth part of the fork in length.....**Pachyrrhina.**
 Only two veins proceeding from the discal cell in front, the upper one always forked, but the præfurca always longer than fifth part of fork.....13.
- 13.—Only one marginal cell, the marginal cross-vein absent; last section of second vein strongly arcuated towards third vein; antennal joints minutely bristly.....**Holorusia.**
 Two marginal cells.....14.
- 14.—Abdomen very long and slender; antennæ 12-jointed.....**Longurio.**
 Abdomen not so elongate; antennæ 13-jointed.....15.
- 15.—Antennæ serrate beneath, rather thickened; boreal species..**Stygeropsis.**
 Antennæ not serrate.....**Tipula.**
- 16.—Second vein furcate, therefore two submarginal cells present*.33.
 Second vein simple, never furcate, therefore never more than one submarginal cell present.....17.
- 17.—Antennæ 14-jointed; if sometimes apparently 15-jointed, then the proboscis never longer than head (subfam. Limnobia)30.
 Antennæ 16-jointed; or if only 12- or 15-jointed, then the proboscis nearly as long as body, or an extra marginal cross-vein in wing.....18.
- 18.—Tibiæ with spurs at tip; first usually ending in second (subfam. Cylindrotomina).....19.
 Tibiæ without spurs at tip; first vein ending in costa (subfam. Limnobia anomala)22.
- 19.—Antennal joints almost cylindrical, those of flagellum longer than wide; head smooth 20.
 Antennal joints rounded, those of flagellum not longer than wide; head and thorax punctured.....**Triogna.**
- 20.—Yellow, black-striped and spotted species.....21.
 Species with brownish body and grayish head and thorax..**Phalacrocera.**
- 21.—Five posterior cells; small cross-vein present.....**Cylindrotoma.**
 Only four posterior cells; submarginal cell in close contact at base with discal cell, the small cross-vein therefore wanting.....**Liogma.**
- 22.—No submarginal cell; rostrum longer than head and thorax together, antennæ 12-jointed.....**Toxorhina.**
 Submarginal cell present.....23.
- 23.—Rostrum of ♂ quite as long as body, somewhat shorter in ♀; antennæ 15-jointed.....**Elephantomyia.**
 Rostrum never so long as head and thorax together..24.
- 24.—Discal cell present.....25.
 Discal cell absent.....**Elliptera.**
- 25.—No marginal cross-vein.....26.
 Marginal cross-vein present (faint in *Antocha*).....27.
- 26.—Rostrum slightly longer than head.....**Rhamphidia.**
 Rostrum shorter than head.....**Atarba.**

* Do not mistake a second (outer) marginal cross-vein in *Paratropesa* for a branch of second vein; this genus is included in next division with second vein simple and only one submarginal cell.

- 27.—A supernumerary marginal cross-vein connecting second vein a little before its tip with costa, inner marginal cross-vein elongate; antennæ 15-jointed.....**Paratropesa.**
 Only one marginal cross-vein.....28.
- 28.—Tip of first vein only a little beyond proximal end of submarginal cell...29.
 Tip of first vein about as far beyond proximal end of submarginal cell as breadth of wing.....**Dicranoptycha.**
- 29.—Anal angle of wing nearly square, prominent; submarginal cell much longer than first posterior, auxiliary vein ending in first vein..**Antocha.**
 Anal angle but little prominent, not at all square; submarginal and first posterior cells nearly equal, auxiliary vein ending in costa.
Tenucholabis.
30. A supernumerary cross-vein present between fifth and sixth veins.
Trochobola.
 No such cross-vein present.....31.
- 31.—Proboscis longer than head and thorax together.....**Geranomyia.**
 Proboscis not longer than head.....32.
- 32.—Joints of flagellum pedicelled, antennæ pectinate, bipectinate, or subpectinate.....**Rhipidia.**
 Antennal joints neither pedicelled nor pectinate.....33.
- 33.—Tip of auxiliary vein usually opposite, anterior, or only a little posterior to origin of second vein; marginal cross-vein always at tip of first vein.
Dicranomyia.
 Tip of auxiliary vein usually far beyond origin of second vein; marginal cross-vein often some distance before tip of first vein...**Limnobia.**
- 34.—Tibiæ without terminal spurs (subfam. Erioptera).....35.
 Tibiæ with terminal spurs (minute in *Phyllolabis*, *Rhaphidolabis* and *Plectromyia*).....49.
- 35.—Wings either distinctly pubescent on their whole surface, or with long pubescence on the longitudinal veins.....36.
 Wings either wholly naked, or with a scarcely perceptible pubescence on veins.....41.
- 36.—Wings pubescent only on veins; discal cell present or absent.....37.
 Wings pubescent on their whole surface; discal cell present or absent.
Rhypholophus.
37. Præfurca ending in second submarginal cell, which is longer than first (genus *Erioptera*).....38.
 Præfurca ending in first submarginal cell, which is longer than second.
Molophilus.
- 38.—Anterior branch of fourth vein forked.....subgen. **Mesocyphona.**
 Posterior branch of fourth vein forked.....39.
- 39.—Axillary cell broader in middle than near margin of wing.
 subgen. **Erioptera.**
 Axillary cell much broader near margin than in middle; discal cell present.40.
- 40.—Fork of posterior branch of fourth vein emitting a stump of a vein from its angular anterior branch into the discal cell...subgen. **Hoplolabis.**
 Fork of posterior branch of fourth vein normal, emitting no stump, the two branches arcuate.....subgen. **Acyphona.**
- 41.—Axillary vein very strikingly undulating.....**Symplecta.**
 Axillary vein straight, or only gently curved...42.

- 42.—An inner marginal cell present, which is short, broad and nearly triangular; discal cell absent.....**Cryptolabis**.
 Inner marginal cell either wanting (no marginal cross-vein), or elongate and much longer than wide.....43.
- 43.—Fork of second vein very short and the anterior branch moderately steep, the outer marginal cell thereby small and almost in the form of an equilateral triangle.....44.
 Fork of second vein long, the anterior branch almost parallel with posterior and the outer marginal cell in consequence much extended in length.....45.
- 44.—Marginal cross-vein present, connecting first vein with præfurca of second considerably before furcation of latter.....**Empeda**.
 No marginal cross-vein.....**Gonomyia**.
- 45.—Marginal cross-vein situated well beyond furcation of second vein.....47.
 Marginal cross-vein situated immediately after furcation of second vein.....46.
- 46.—Auxiliary vein terminating before marginal cross-vein...**Gnophomyia**.
 Auxiliary vein terminating beyond marginal cross-vein.....**Trimicra**.
- 47.—Posterior branch of fourth vein not forked (four posterior cells present).....48.
 Both branches of fourth vein forked (five posterior cells present).
Cladura.
- 48.—Great cross-vein far anterior to origin of second vein; legs long, very slender and delicate**Diotrepha**.
 Great cross-vein far beyond origin of second vein*.....**Signatomera**.
- 49.—Antennæ 6- to 10-jointed (subfam. Anisomerina)..... 50.
 Antennæ at least 13-jointed, but usually 16-jointed.....52.
- 50.—Discal cell wanting**Anisomera**.
 Discal cell present.....51.
- 51.—Subcostal cross-vein a short distance before tip of auxiliary vein, the marginal cross-vein a short distance before tip of first vein.....**Eriocera**.
 Subcostal cross-vein at very tip of auxiliary vein, the marginal cross-vein more distant from tip of first vein.....**Pentoptera**.
- 52.—Subcostal cross-vein at about middle of wing and always before origin of second vein (subfam. Amalopina).....53.
 Subcostal cross-vein situated beyond middle of wing, and always beyond origin of second vein (subfam. Linnophilina)..... 58.
- 53.—Antennæ 13-jointed.....51.
 Antennæ 16-jointed.....56.
- 54.—Two marginal cross-veins present, and therefore three marginal cells, the innermost marginal cell short and broad.....**Dicranota**.
 Only one marginal cross-vein, inner marginal cell elongate.....55.
- 55.—Both branches of fourth vein forked**Rhaphidolabis**.
 Anterior branch of fourth vein simple, posterior branch furcate.
Plectromyia.
- 56.—Whole surface of wings finely pubescent**Ula**.
 Wings naked57.
- 57.—Small cross-vein at a right angle with longitudinal axis of wing; last joint of palpi not longer than two preceding joints together.....**Amalopsis**.
 Small cross-vein at a very oblique angle with longitudinal axis of wing, and in one line with great cross-vein; last joint of palpi longer than the three preceding joints together.....**Pedicia**.

* Although this cannot actually be gathered from the description, it is universal so far as I can find in the group to which this genus belongs.

- 58.—Whole surface of wings finely, but densely pubescent.....**Ulomorpha**.
Wings not pubescent (or only some of the veins).....59.
- 59.—Marginal cross-vein absent.....**Phyllolabis**.
Marginal cross-vein present.....60.
- 60.—Axillary vein unusually short, curved abruptly toward anal angle.
Trichocera.
Axillary vein moderately or very long, not so curved.....61.
- 61.—Auxiliary vein united with costa by an extra cross-vein at about middle of wing.....**Epiphragma**.
Auxiliary vein not so united with costa (genus *Limnophila*).....62.
- 62.—Antennæ of ♂ much longer than those of ♀, filiform.....63.
Antennæ of ♂ and ♀ not strikingly unequal.. ..64.
- 63.—A supernumerary cross-vein present in second basal cell.
subgen. **Idioptera**.
No such cross-vein; ♂ antennæ with a long, erect pubescence on flagellum.
subgen. **Lasiomastix**.
- 64.—Two branches of second vein connected by a cross-vein.
subgen. **Dicranophragma**.
Two branches of second vein not so connected.....65.
- 65.—A supernumerary cross-vein in second basal cell; antennæ short in both sexes.....subgen. **Ephelia**.
No such cross-vein.....66.
- 66.—Marginal cross-vein situated well beyond furcation of second vein, very little before tip of first vein.....67.
Marginal cross-vein situated immediately or but little beyond furcation of second vein, and even in latter case well before tip of first vein.
subgen. **Limnophila**.
- 67.—Subcostal cross-vein situated well before tip of auxiliary vein.
subgen. **Prionolabis**.
Subcostal cross-vein situated at tip of auxiliary vein, and appearing as though connecting first vein with costa, the auxiliary vein terminating in middle of cross-vein.....subgen. **Dactylolabis**.

Family DIXIDÆ.

- One genus.....**Dixa**.

II.—NEMOCERA ANOMALA.

Family BIBIONIDÆ.

- 1.—Second basal cell present (*Bibionina*).....2.
Second basal cell wanting (*Scatopsina*).....5.
- 2.—Third vein furcate.....3.
Third vein simple; second basal cell longer than first; wings of ♂ never shortened.....4.
- 3.—Palpi 4-jointed; first antennal joint very elongate.....**Hesperinus**.
Palpi 5-jointed.....**Plecia**.

- 4.—Front tibiæ ending in a spine-like process. **Bibio.**
 Front tibiæ terminated with a coronoid spiny process..... **Diloplus.**
 5.—Front tibiæ terminating in a spinous process..... **Aspistes.**
 Front tibiæ of usual form; third vein not furcate..... **Scatopse.**

Family SIMULIDÆ.

- One genus..... **Simulium.**

Family BLEPHAROCERIDÆ.

- 1.—An incomplete vein present near the posterior wing margin2.
 No incomplete vein near posterior margin..... **Paltostoma.**
 2.—Second vein with two branches.....3.
 Second vein simple 4.
 3.—Origin of anterior branch of second vein coincident with origin of third
 vein; anterior tibiæ curved in ♂ **Bibiocephala.**
 Origin of anterior branch of second vein beyond origin of third vein; ante-
 rior tibiæ straight in ♂ **Agathon.**
 4.—Eyes contiguous, bisected by an infaceted cross-band, or by a simple groove.
Blepharocera.
 Eyes widely separated, not so bisected..... **Liponenra.**

Family RHYPHIDÆ.

- Second vein reaching costa at same point with first; eyes separated by a broad
 front, occiput little developed **Olbiogaster.**
 Second and first veins terminating separately in costa; front narrower, occiput
 much developed..... **Rhyphus.**

Family ORPHNEPHILIDÆ.

- One genus ... **Orphnephila.**

NOTES.

MYCETOPHILIDÆ:—I cannot with certainty separate the genus *Diomonus* Wlk. (List. i, 87) from *Boletina* by means of the description of that author. By taking his statement as true that *Diomonus* has the wings of *Leptomorphus*, I have inserted it in the table, as distinguished from *Boletina* by the costal vein extending but little beyond the termination of the third vein. But I cannot rely on any interpretation of the indefinite statement that "the areola under the anterior margin of the wing, absent in that genus [*Leptomorphus*], is present in this [*Diomonus*]." I would omit the genus altogether, but for the fact that it is indicated in the Osten Sacken Cata-

logue as represented in the museum at Cambridge (Mass.), whence I infer that Baron Osten Sacken has seen it, and considers it a valid genus.

TIPULIDÆ:—*Mesocyphona*, *Acyphona* and *Hoplolabis* are subgenera of *Erioptera*. For the proper definition of them, see Osten Sacken, Mon. 4, 151-2; also O. S., Stud. Tipulidæ, ii, Berl. Ent. Zeit. xxxi (1887), 193-4.

For proper limitation of the subgenera of *Limnophila*, see O. S., Mon. 4, 197-99; and O. S., Stud. Tip. ii, l. c. 209.

For explanation of the terminology used in connection with the venation of the wings, see O. S., Mon. 4, p. 34.

BLEPHAROCERIDÆ:—For a synopsis of the described species and genera of the Blepharoceridæ of the world, see a paper recently published by Baron Osten Sacken, Berl. Ent. Zeitschr. xxxvi (1891), pp. 407-11.

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N. B.—For valuable descriptions, notes and references on all the genera of Tipulidæ of the world, see Osten Sacken's "Studies on Tipulidæ," Pts. I and II, in Berl. Ent. Zeitschr. xxx (1886), pp. 153-188, and xxxi (1887), pp. 163-242.
